IN THE CLAIMS:

The text of all pending claims (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. When strikethrough cannot easily be perceived, or when five or fewer characters are deleted, [[double brackets]] are used to show the deletion. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claims 1, 6, 11, 13, 14 and 16, and CANCEL claims 3 and 15 without prejudice or disclaimer in accordance with the following:

1. (Currently amended) An automatic power calibration method comprising:

obtaining two or more pairs of first reference signal values, or values of reference signals of first channel signals, which are input to an optical emission unit driving unit, the optical emission unit driving unit driving an optical emission unit, and first output signal values obtained by measuring outputs of the optical emission unit resulting from the first channel signal values, using an optical detection unit;

obtaining two or more pairs of second channel signal values, which are input to the optical emission unit driving unit, the optical emission unit driving unit driving the optical emission unit, and second output signal values obtained by measuring outputs of the optical emission unit resulting from the second channel signal values, using the optical detection unit;

storing the pairs of signal values obtained in the obtaining the first reference signal values and the obtaining the second channel signal values;

determining the first reference signal value S1 and the second channel signal value S2 from the stored signal values, so as to record information on a disc inserted in an optical recording device; and

inputting in the optical emission unit driving unit the first channel signal value S1 and the second channel signal value S2 to drive the optical emission unit,

wherein the obtaining two or more pairs of first and second channel signal values are operations obtaining the pairs of signal values within a period where a relation between the signal values exhibits a linear function.

2. (Original) The method as claimed in claim 1, wherein the inputting in the optical emission unit driving unit comprises:

determining a ratio R of the second output signal value to the first output signal value for a particular disc type;

determining an optimum value T1 of the first output signal according to the disc type;

determining a linear function F1 reflecting a relation between the first reference signal value and the first output signal value according to input/output signals obtained in the obtaining the pairs of first reference signal values, to determine the first reference signal value S1 corresponding to the optimum value T1 of the first output signal according to the linear function F1;

determining the second output signal value T2 according to the optimum value T1 of the first output signal and the ratio R; and

determining a linear function F2 reflecting a relation between the second channel signal value and the second output signal value according to the signal values obtained in the obtaining two or more pairs of second channel signal values, to determine the second channel signal value S2 corresponding to the second output signal value T2.

3. (Cancelled)

4. (Original) The method as claimed in claim 1, wherein the obtaining two or more pairs of second channel signal values comprises:

inputting the second channel signal in a state where the first channel signal is already input to the optical emission unit driving unit; and

determining as the second output signal value the value obtained by subtracting the first output signal value resulting from the first channel signal from the output signal value measured by the optical detection unit, to obtain two or more pairs of input/output values based on the determined second output signal value.

5. (Original) The method as claimed in claim 2, wherein:

the obtaining two or more pairs of first and/or second channel signal values comprise obtaining three or more pairs of signal values to find two or more periods divided by the pairs of signal values; and

the determining linear functions F1 and F2 comprises determining the linear functions F1 and F2 for respective periods and determining the value S1 of the first reference signal and/or the value S2 of the second channel signal.

6. (Currently amended) An automatic power calibration apparatus for an automatic recording apparatus, the apparatus comprising:

an optical emission unit;

an optical emission unit driving unit outputting a signal driving the optical emission unit in response to two or more first channel signal values and/or two or more second channel signal

values;

an optical detection unit detecting two or more first output signal values and two or more second output signal values corresponding respectively to the first and second channel signals;

a memory;

a central processing unit receiving the first and second output signal values from the optical detection unit; and

an automatic power control unit adjusting the first channel signal value to maintain the first output signal value equivalent to a first reference signal, according to the first reference signal, which is a reference signal of the first channel signal input from the central processing unit, and the first output signal input from the optical detection unit, and outputting the adjusted first channel signal value to the optical emission unit driving unit,

wherein the central processing unit outputs the second channel signal to the optical emission unit driving unit to control the second output signal value, stores in the memory a pair of input/output values of the first reference signal value and the corresponding first output signal value as well as a pair of input/output values of the second channel signal value and the corresponding second output signal value, and refers to a linear function reflecting a relation between the pairs of input/output values stored in the memory and determines the first reference signal value S1 and the second channel signal value S2, so as to record information on an inserted disc.

7. (Original) The apparatus as claimed in claim 6, further comprising a database unit storing data including a ratio of the second output signal value to the first output signal value, which varies from disc type to disc type, and an optimum first output signal value,

wherein the central processing unit determines a ratio R of the second output signal value to the first output signal value for particular types of the inserted disc by referring to the database unit, determines an optimum value T1 of the first output signal value for the particular disc type, determines a linear function F1 reflecting a relation between the first reference signal value and the first output signal value according to the pairs of input/output values of the first reference signal value and the first output signal value stored in the memory to determine the first reference signal value S1 corresponding to the optimum value T1 of the first output signal, determines the second output signal value T2 according to the optimum value T1 of the first output signal and the ratio R, and determines a linear function F2 reflecting a relation between the second channel signal value and the second output signal value according to the pairs of input/output values of the second channel signal value and the second output signal value stored in the memory to determine the second channel signal value S2 corresponding to the second output signal value T2.

8. (Original) The apparatus as claimed in claim 6, wherein the optical emission unit driving unit receives the first and second channel signals together to drive the optical emission unit,

and wherein the central processing unit determines as the second output signal value the value obtained by subtracting the first output signal value resulting from the first channel signal from the output signal value of the optical emission unit.

9. (Original) The apparatus as claimed in claim 6, further comprising an amplification unit receiving the output of the optical detection unit and outputting the received output to the central processing unit.

10. (Original) The method as claimed in claim 7, wherein the central processing unit finds two or more periods divided by the pairs of input/output values by obtaining three or more pairs of input/output values of the first channel signal values and the first output signals, and three or more pairs of input/output values of the second input signal values and the second output signals, and determines linear functions F1 and F2 for respective periods to determine the first input signal value S1 and/or the second input signal value S2.

11. (Currently amended) The apparatus as claimed in claim ~~6~~9, wherein the central processing unit outputs an offset erase control signal to the amplification unit to remove an offset existing in the amplification unit.

12. (Original) A computer-readable medium having embodied thereon a computer program executing instructions to:

input pairs of first and second channel signal values to an optical emission driver;

optically detect first and second output signal values of an optical emission unit resulting from the inputted first and second channel signal values;

determine a first target reference signal value and a second target reference signal value of a first reference signal and a second reference signal from a linear relationship of the first and second channel signal values and the first and second output signal values; and

adjust the first and second reference values controlling the first and second channel signal values to the first and second target reference values, thereby maintaining the first and second output signal values at first and second optimal output signal values.

13. (Currently amended) A method of controlling power in an optical device having

an optical emission driver driving an optical emission unit, comprising:

inputting a pair of first channel signal values and a pair of second channel signal values to the optical emission driver;

optically detecting first output signal values and second output signal values from the optical emission unit resulting from the pairs of first channel signal values and second channel signal values;

determining a first target reference value of a first reference signal and a second target reference value of a second reference signal based on a linear relationship of the first and second channel signal values and the first and second ~~ouput~~ output signal values; and

adjusting the first and second reference signal values to the first and second target reference values, thereby maintaining the first and second output signal values at optimal signal levels.

14. (Currently amended) An apparatus controlling optical recording power, comprising:

an optical emission driver producing a driving signal from first and second channel signals;

an optical emission unit receiving the driving signal to produce an output signal;

an optical detection unit detecting the output signal;

a central processing unit outputting first and second reference signals; ~~and~~

a power control unit adjusting the first and second channel signals to maintain the output signal at an optimal level by comparing the first and second reference signals to the detected output signal, and

the central processing unit further outputs an overdrive signal directly inputted to the optical emission driver such that the first and second reference signals comprise signals generated by a closed loop and the overdrive signal comprises a signal generated by an open loop.

15. (Cancelled)

16. (Currently amended) The apparatus of claim ~~15~~14, wherein the optical emission driver produces the driving signal by adding together currents corresponding to the first and second reference signals and the overdrive signal.